

## REMARKS

Claims 1-23 are currently pending in the application; with claims 1 and 10 being independent.

Claims 1 and 10 have been amended to better define the present invention. Applicants respectfully request entry of this amendment and favorable consideration thereof, and earnestly seek timely allowance of the pending claims.

### Allowable Subject Matter

In the outstanding Final Office Action, the Examiner withdrew the allowability of Claims 2-5, 7, 13-14, 21 and 22, in view of the newly discovered references to Knee et al. (WO 00/22831) and Sugiyama (U.S. Patent No. 6,741,793 B1). The Examiner made the additional comment that “the amendments to Claims 1 and 10 also change the scope and meaning of these dependent claims and now make these claims unpatentable over the prior art and a basis for finality.” Applicants disagree with the Examiner’s reasoning in this respect, and submit that the claim amendments are not the cause for the unpatentability of these claim over the prior art.

### Claims Rejections – 35 U.S.C. § 102

The Office Action indicated that Claims 1-20 are rejected under 35 U.S.C. § 102(e) as being anticipated by PCT Publication (WO 00/22831) to Knee et al. (“Knee”). Applicants disagree and submit the Examiner has failed to establish a *prima facie* case of anticipation.

Knee is merely directed to a method of detecting I-frames in a video signal which has previously been MPEG encoded, which involves taking a DCT and analyzing the frequency of zero value coefficients. An I-frame, which does not utilize prediction coding, is expected to have a higher number of zero coefficients than a predicted P or B frame. (See Abstract). Knee’s invention relies on the observation that intra-coded blocks and MPEG 2 are the direct output of an inverse DCT function, whereas predicted match core blocks are the result of an inverse DCT

function added to a prediction. If a forward DCT of a picture is performed that has been decoded from an MPEG 2 bit stream, the DCT coefficients of interblocks would take only values that were in the set of quantizer reconstruction levels specified in the MPEG 2 standard. Without the knowledge of the quantizer step size and weighting matrix used in the original encoder, the only quantizer reconstruction level that is known is zero. (Page 3, lines 22-31.) Knee further discloses that if the number of zero DCT coefficients in each frame are counted, a high number of zero coefficients would indicate that the frame is an I-frame or a predicted frame in which a very high proportion of the blocks are intra-coded. In either case, it would be acceptable to judge a frame as an I-frame for the purpose of optimizing performance of a recoding step. (See page 4, lines 3-8.)

Knee further discloses that such a picture type detector could involve the detection of all of the different categories of frames which make up the frame structure in a video signal and not merely the I-frames. The detection technique is similar to that employed for the detection of I-frames. Here, an average of a results over a large number of frames are taken, and if it is found that P-frames are, on average, slightly more intra-coded than B-frames, this result can be used to determine a particular frame structure which was used in the original encoding. (See Page 6, lines 8 –17.)

Knee further discloses a structure wherein decompressed video-in is split into two paths and converted into field blocks and frame blocks. A DCT transform is then performed on these two streams and subsequently, zero coefficients for the signals are then counted. The two signals are then added and combined and the combined zero coefficient count is compared with a threshold. An I-frame is detected if the threshold is exceeded. The threshold is calculated utilizing information from the combined zero coefficient count and the location of the last detected I-frame. (See Page 6, line 31 - Page 7, line 7; Figure 4.) Additionally, Knee discloses that while counting zero coefficients has the advantage of not requiring prior knowledge of the full set of possible quantization values, there will be circumstances where it will be appropriate to measure the occurrence of other values. (See Page 7, lines 11-13).

However, Knee fails to disclose, at least, “a DCT coefficient counter for counting a feature amount on a frequency-region basis using an unquantized DCT coefficient output from said DCT unit,” as recited in Claim 1 and “counting features within the transformed decoded image on a frequency-region bases,” as recited in Claim 10.

Knee is distinguished by the present invention in that Knee merely counts zero coefficients over the entire DCT frame to determine if an I-frame has been previously encoded. That is, Knee considers all of the frequencies in the DCT transformed frame and does not perform counting on a frequency region basis.

Accordingly, Applicants respectfully request the Examiner to withdraw the rejections of Claims 1 and 10. Claims 2-9 depend from Claim 1 and are therefore allowable at least by virtue of their dependency from Claim 1. Claims 11-20 depend from Claim 10 and are allowable by virtue of their dependency from allowable Claim 10.

Claim Rejections – 35 U.S.C. § 103

The Examiner rejected Claims 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Knee in view of U.S. Patent No. 6,741,793 to Sugiyama (“Sugiyama”). Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and traverse this rejection.

Regarding Claims 21 and 22, Knee merely teaches a method for detecting I-frames in a video signal which has previously been MPEG encoded, the detection is performed by counting zero coefficients in an entire DCT frame.

However, Knee fails to teach or suggest, at least, “wherein the first specified region is a high-frequency,” as recited in Claim 21 and “wherein the specified region is a low frequency region,” as specified in Claim 22.

Sugiyama fails to cure the deficiencies of Knee in this respect. Sugiyama merely discloses an apparatus for transmitting compressed video data. Specifically, Sugiyama merely

discloses rearranging DCT coefficients utilizing zigzag scans in the order from a DC component to higher frequency components for each DCT block corresponding to the MPEG2 standard. (See column 13, lines 4-13; Figures 8A.) The DCT coefficients are subsequently encoded with the variable code by a variable length coder portion of the MPEG encoder. By using the disclosed zigzag rearranging process, the first coefficient is a DC component that is a fixed component. The next components (AC components) are assigned codes corresponding to zero-runs and levels that follow (See column 12, lines 53-58; Figure 7.)

Sugiyama is distinguished from the present invention in that Sugiyama merely discloses reordering coefficients from the lowest frequency to the highest. Sugiyama fails to disclose counting features within the transform decoded image on a frequency regions basis and detecting a picture-type based upon the counted features as included in Claims 21-23.

Moreover, Applicants submit that one of ordinary skill in the art would not be motivated to combine the teachings of Sugiyama with Knee. The Examiner asserts that Sugiyama teaches the details of the “MPEG2 standard” and that would be obvious at the time the invention was made to modify Knee’s teaching of counting coefficients with the teaching of Sugiyama to “correspond to the MPEG2 standard.” (See Office Action, page 7, paragraph number 7.) Applicants submit that one of ordinary skill in the art would not use the teachings of Sugiyama so that these teachings “correspond to the MPEG2 standard” because Knee already discloses compressing a video signal using an MPEG coder 206 in the specification on Page 3, lines 5 – 14, and shows an MPEG coder in Figure 2. Accordingly, Applicants suggest that these references are not combinable and respectfully request the Examiner to withdraw the §103 rejection.

Accordingly, Applicants respectfully request the Examiner to withdraw the rejection of Claims 21 –23.

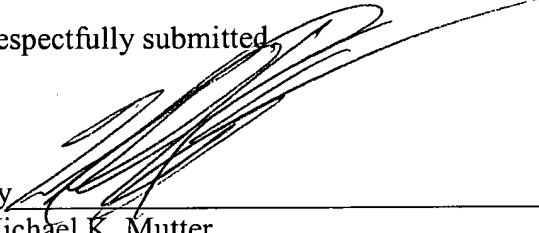
CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael K. Mutter (Reg. No. 29,680) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

  
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Respectfully submitted,

  
By \_\_\_\_\_  
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